SURREBUTTAL TESTIMONY OF JOSEPH P. RIOLO
ON BEHALF OF RHYTHMS LINKS, INC. AND
COVAD COMMUNICATIONS COMPANY
DOCKET NO. 00-0393

I. INTRODUCTION

1. Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Joseph P. Riolo. I am an independent telecommunications consultant. My business address is 102 Roosevelt Drive, East Norwich, N.Y. 11732.

2. Q. ARE YOU THE SAME JOSEPH P. RIOLO WHO FILED DIRECT AND REPLY TESTIMONY IN THIS CASE?

A. Yes.

3. Q. PLEASE DESCRIBE YOUR EDUCATION AND RELEVANT WORK EXPERIENCE.

A. My education, relevant work experience and qualifications were detailed in my curriculum vitae, attached as Rhythms/Covad Exhibit 2.1 to my direct testimony

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my testimony is to respond to technical issues raised in the rebuttal Testimony of Ameritech-IL's witnesses Schlackman, Smallwood,

---

[1] I am informed by counsel for Covad that Covad has entered into a regional settlement with Ameritech-IL's parent corporation, SBC Communications, which disposes of Covad's claims regarding particular rates, terms and conditions for line sharing over copper loops. Thus, Covad does not join in this testimony to the extent that it discusses line sharing prices and other terms and conditions for copper loops. Covad does join the testimony to the extent it deals with the prices and other terms and conditions for line sharing over loops constructed at least partially of fiber optic cable and digital loop carrier. Similarly, Covad's settlement with SBC does not affect its positions on the proper prices for loop conditioning.

Chapman and Lube. More specifically I address issues that Ms. Schlackman raises concerning Carrier Serving Areas, loop conditioning, the Serving Area Concept, task time intervals and splitters; issues that Ms. Chapman and Mr. Lube raise concerning equal access to SBC's new loop network topology, dubbed "Project Pronto;" and issues that Mr. Smallwood raises regarding the engineering inputs used in the costs presented in Ms. Murray's direct testimony.

II. AMERITECH-IL IS INCORRECT IN ITS CHARACTERIZATION OF CARRIER SERVING AREA DESIGN CONCEPTS.

4. Q. PLEASE RESPOND TO MS. SCHLACKMAN'S CLAIMS THAT:

1) CSA DESIGN IS NOT A DESIGN STANDARD FOR ALL ENGINEERED LOOPS (PAGES 1-2),

2) CSA GUIDELINES WERE FIRST FOLLOWED WITHIN AMERITECH-IL IN THE LATE 1987-88 TIMEFRAME (PAGE 8) AND

3) THE CSA CONCEPT DOES NOT ELIMINATE ALL BRIDGED TAP AND LOAD COILS (PAGES 9-10).

A. The Carrier Servicing Area ("CSA") concept was originally promulgated in 1980[2], in the former Bell System. CSA principles have been an integral part of the Long Range Outside Plant Planning ("LROPP") process used by ILECs for years. A CSA is a geographical area that is or could be served by a Digital Loop Carrier ("DLC") system from a single remote terminal site, and within which *all* loops, without any conditioning or individual loop design, are capable of providing, for example, conventional voice-grade message service and digital data service up to 64 kbps. The maximum loop length in a CSA is 12 kft

[2] Bellcore Notes on the Networks, Issue 3 December 1997, at 7-68.

(kilofeet, or 1000 feet) for 19-, 22-, or 24-gauge cables and 9 kft for 26-gauge cables. These lengths include any bridged tap that may be present. The maximum allowable bridged tap is 2.5 kft, with no single bridged tap longer than 2.0 kft. All CSA loops must be unloaded, and should not consist of more than two gauges of cable. The geographic area around the serving central office within a distance of 9 kft for 26-gauge cable and 12 kft for 19-, 22-, and 24-gauge cables, although not a CSA, is fully compatible with the CSA concept in terms of achievable transmission performance and supported services.[3]

This information is straightforward and factual, and should not be in dispute. Despite this, Ms. Schlackman appears to be suggesting that the Commission should give little weight to CSA principles because they are supposedly only "guidelines." It seems to me that Ms. Schlackman is splitting hairs here. Even if the CSA principles were only guidelines (which I don't agree with, because they have been broadly applied by most if not all major ILECs), they certainly represent best engineering practices as specified by Bellcore. If Ameritech-IL implemented these best engineering practices late, on a spotty basis, or not at all, Ameritech-IL's engineering is deficient, and CLECs should not be penalized by having to pay for Ameritech-IL's remedial efforts to correct these deficiencies.

5. Q. IF PROPER OUTSIDE PLANT ENGINEERING HAD BEEN CONSISTENTLY PERFORMED OVER THE YEARS, WOULD THERE BE A LOOP CONDITIONING PROBLEM?

---

[3] Bellcore Notes on the Networks, Issue 3 December 1997, at 12-5.

A. No. Except for an extremely rare case of special load coils placed on loops shorter than 18,000 feet (for which special services compensation should have been obtained), even Ameritech-IL agrees with the rest of the industry that only copper loops longer than 18,000 feet require load coils. Ameritech-IL has not indicated what percentage of its outside plant has loaded pairs. However, Ms. Schlackman presents evidence that DLC has been used on loops longer than 17 kft feet for 20 years.[4] She also testifies that 13.7% of Ameritech-IL's access lines are currently served by digital loop carrier systems in Illinois.[5] Bellcore's loop study reports that only 8% of loops are greater than 18,000 feet.[6] Therefore, load coils should have been removed by now, if Ameritech-IL has been employing good engineering practices.

6. Q. HAS MS. SCHLACKMAN CORRECTLY CHARACTERIZED YOUR TESTIMONY CONCERNING DE-CONDITIONING ALL PAIRS IN A BINDER GROUP?

A. No. To read my testimony to imply that a technician would deload cable pairs without the benefit of engineering direction, as Ms. Schlackman does, is a complete mischaracterization of my testimony. The outside plant engineer can and should access databases (*e.g.*, LFACS, TIRKS) to ascertain if cable pairs are designed circuits when contemplating conditioning of cable plant. After that lookup, a work order is issued directing the technician to deload the appropriate cable pairs, *e.g.*, spare pairs, mis-loaded VF pairs, etc.

---

4 Schlackman Direct, at 26:29-30.
5 Schlackman Direct, at 8.
6 Bellcore Notes on the Networks, December 1994, at 12-10.

In addition, Ms. Schlackman's claim that load coils are required for many special circuits shorter than 18 kft is extremely misleading. A few special analog circuits built 15 to 30 years ago may have needed a load coil or two. However, no modern special circuits require load coils and, in fact, the digital nature of special circuits deployed over the course of the last 10 to 15 years precludes the use of load coils.[7] The few old special circuits that Ms. Schlackman alludes to have undoubtedly been, (or should have been) disconnected by now, and replaced with modern outside plant technology.

7. Q. **OVERALL, MS. SCHLACKMAN'S TESTIMONY ON THIS POINT SEEMS DESIGNED TO CREATE THE IMPRESSION THAT IT IS IMPOSSIBLE OR IMPRACTICAL TO CONDITION MULTIPLE LINES AT A TIME. IS THERE ANY MERIT TO THAT IMPRESSION?**

A. No. Indeed, I am surprised that any ILEC would still seriously argue this point. As an initial matter, I would note that Ms. Schlackman does not actually rebut the many reasons provided in my previous testimony that multiple line conditioning is both efficient and a standard practice. I also note that several ILECs, including BellSouth, US West and Sprint, have agreed that DSL "conditioning" should be done for multiple lines at once. Most of all, I am surprised that, given all the attention paid to this issue in recent proceedings in Illinois and other Ameritech states, Ms. Schlackman seems to be unaware that *** **AMERITECH-IL PROPRIETARY**

[7] Ms. Schlackman also refers at page 3 to an all-26-gauge design with two-point loading scheme that is a rare occurrence, referred to as unigauge-design – a concept that was born, raised and killed as a bad idea, circa 1976-1978.

END PROPRIETARY *** Thus, contrary to the impression created by Ms. Schlackman's testimony, conditioning multiple pairs once a technician has been dispatched is not only possible, it is a standard practice and is the efficient approach to outside plant management.

III. AMERITECH-IL'S CLAIM THAT BRIDGED TAP IS NECESSARY AND BENEFICIAL IS INCORRECT.

8. Q. MS. SCHLACKMAN CLAIMS THAT THE INSTALLATION OF BRIDGED TAP PLANT ADDS FLEXIBILITY TO THE PLANT AND DECREASES COST AND THAT THEREFORE IT WOULD BE IMPRACTICAL TO REMOVE BRIDGED TAPS. DO YOU AGREE?

A. One might get the impression after reading Ms. Schlackman's rebuttal testimony that bridged tap is good. To the contrary, bridged tap is bad. Ameritech-IL's forward-looking network design, used to set recurring UNE loop prices, certainly does not use bridged tap plant. While Ms. Schlackman attempts to make bridged tap sound necessary and beneficial, the reality is that this approach was proven to be a failed concept more than 25 years ago. The "hardwiring" of feeder pairs to several distribution pairs, known as multiple plant design, was replaced with interfaced plant under the Serving Area Concept design in the early 1970's (which taught outside plant engineers to break bridged tap whenever feasible – at the least on the next engineered job opportunity). Any reasonable amount of flexibility can be achieved via the placement of a cross connection (jumper wire) at the Feeder Distribution Interface ("FDI"). Despite Ms. Schlackman's claims to the contrary, the many modern engineering guidelines that I am familiar with unanimously

recommend breaking existing multiplied (bridge tapped) plant as a means of deferring major capital expenditures.

IV. AMERITECH-IL' CLAIMS REGARDING FRAME-MOUNTED SPLITTERS ARE FALSE.

9. Q. MS. SCHLACKMAN CLAIMS THAT

1) 16-LINE FRAME MOUNTED SPLITTERS ARE 30 – 50% HIGHER COST THAN BAY-MOUNTED SPLITTERS ON A PRICE PER PORT,

2) FRAME-MOUNTED SPLITTERS LEAD TO FRAME EXHAUST, AND

3) FRAME-MOUNTED SPLITTERS PRESENT NO REASONABLE METHOD TO PERFORM MAINTENANCE ON FAILED SPLITTER CARDS.

ARE ANY OF THESE ASSERTIONS CORRECT?

A. No. Ms. Schlackman reports that a Corning sales representative who "did not know the exact price" nonetheless informed her that frame-mounted splitters are more expensive per port than bay-mounted splitters. As part of the public record in New York Case 98-C-1357, a data response received from Bell Atlantic-New York (now Verizon) indicates that the price per line for both types of SIECOR splitter (frame mount and rack mount), are the same. If Verizon can obtain both splitter types for the same price, Ameritech-IL can as well.

Moreover, the criticisms Ms. Schlackman levels against frame-mounted splitters, namely frame congestion or inefficient use of available space, are unfounded. Main Distribution Frames ("MDFs") were devised in an era that featured only copper cable technology. They enabled densely packed wire pairs contained in cable sheaths to be fanned out on vertically mounted terminals so

that jumpers could connect these individual wires to switch equipment appearances, similarly fanned out horizontally, on the opposite side of the MDF.

Those familiar with frame planning, design and maintenance realize that MDF congestion can occur in two ways. First, frame exhaust can occur when mountings for the terminal blocks on either the vertical or horizontal side of the MDF are exhausted. Second, and equally if not more important, frame exhaust can be caused by the build-up of jumper wire piles on the horizontal planes. The solution to each of these congestion situations is most often easily achieved. Namely, vertical side exhaust is relieved via re-termination to denser terminal blocks/protectors, extension of the frame, or construction of a new frame. The horizontal side exhaust is usually remedied by using denser terminating blocks and/or housekeeping activities (removing unused terminations). Congestion of the horizontal wiring planes is always a matter of poor plant practices and failure to follow established procedures. Removal of "dead" cross connections and wire management are the obvious solutions.

The advent of fiber and integrated electronics technology has had a profound positive impact on potential MDF congestion. Minimal amounts of new copper cables are terminated on MDFs today, a trend that started about 20 years ago. Moreover, copper plant previously terminated on the MDF has frequently been removed or substituted for planned relief cables. This trend is not surprising, given the fact that the copper interoffice network has migrated from a wholly copper environment into one that is nearly all fiber, and thus no longer using MDF terminations. This interoffice migration has been accomplished since the

advent of Pulse Code Modulation Technology in the early 1970s. While the copper loop plant substitution technology started deployment later than the interoffice, it has no doubt reached the point wherein less copper is now being terminated on the MDF than the amount of fiber/electronics being deployed.[8] This, coupled with the replacement of existing long copper loops with remote terminal technologies (Remote Switch Modules, DLC systems), drives the unmistakable trend towards a reduced need for MDF terminations. Frame planners in the ILEC community have long recognized this trend, and documents dating almost 10 years ago were generated to caution against MDF argumentation in light of existing and future technology requirements.

In addition, Ms. Schlackman's assertion that frame-mounted splitters are less efficient because they consume more frame space than bay-mounted splitters is clearly flawed. In doing her analysis Ms. Schlackman simply ignores that the frame-mounted splitter requires fewer cables, fewer blocks, fewer jumpers and no additional bay space compared to the bay-mounted option. Contrary to Ms. Schlackman's analysis (and the conclusion in Mr. Clausen's testimony on behalf of the Commission Staff), the frame mounted splitter is more efficient. The efficiency is a result of the opportunity to use office frame space that has been vacated due to the transition from copper to fiber-fed loops, the overall reduction in the consumption of frame space, the overall reduction in the number of tie

[8] I note that a certain percentage of fiber/electronics configurations are "universal" (which means that they appear on the MDF), but the trend is towards integrated loop plant termination for the obvious reasons of cost, efficiency and reliability. Thus, while it may be argued that MDF terminations are still being used by some fiber/electronic schemes, their percentage of lines requiring an MDF termination has been declining.

cable and jumpers and the consequent reduction in failures and maintenance requirements.

Thus, the opportunity to mount splitters on the MDF without hampering ILEC operations clearly exists. Moreover, the central office space located away from the MDF that otherwise would be used to mount splitters can be put to better use. The savings generated by the substantial amount of material and labor no longer necessary to support the Ameritech-IL proposed splitter configurations can be translated into reduced rates and service improvements, while allowing competition to flourish.

Finally, Ms. Schlackman is incorrect in her claim that frame-mounted splitters cannot be maintained. It simply makes no sense that a telecommunications vendor would offer a splitter type that could not be maintained: nobody would buy it. As one example disproving Ms. Schlackman's claim, the method and procedure for performing maintenance on a failed splitter card for a frame-mounted CISCO splitter that is similar to the Corning/Siecor splitter has been obtained via the CISCO Internet site at http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/6200/copots.htm. I attach a copy of this document as Exhibit 2.12 to my surrebuttal testimony.

V. MS. SCHLACKMAN'S CONTENTIONS REGARDING BRIDGED TAP REMOVAL ARE INCORRECT.

10. Q. MS. SCHLACKMAN TAKES ISSUE WITH THE REMOVAL OF BRIDGED TAP AT THE SERVING TERMINAL. IS SHE CORRECT?

A. No. Apparently, Ms. Schlackman is unfamiliar with the details of the long-established industry-wide practice (including Ameritech-IL) known as Serving

Area Concept ("SAC"). One of the features of this design practice is the dedication of two (or more) pairs per dwelling unit. The SAC practice states that those pairs should be cut dead beyond the serving terminal for each dwelling unit, and that assignment records be noted to require automated assignment systems use either the primary or secondary pair for each dwelling unit. I note that despite SAC practice, various field entities may have found it expedient to bridge the entire binder group to the serving terminal and not cut the pairs dead beyond their serving point. However, such noncompliant practices should not continue, and certainly should not be the basis for charging CLECs for the removal of such bridged tap.

Thus, it would be proper to cut these pairs at the serving terminal when the opportunity arises, because they were never designed to serve anywhere else, and an automated assignment system would never assign service to them anywhere else. Similarly, restoral of this bridged condition should never be done, as it was not designed to serve a location out of the wiring/terminal limits.

11. Q. **MS. SCHLACKMAN REPEATEDLY POINTS TO THE NEED TO EXCAVATE SPLICES THAT ARE LITERALLY BURIED IN DIRT TO SUPPORT HER CLAIM THAT YOUR TASK TIME ESTIMATES ARE UNDERSTATED. IS HER ASSERTION THAT SPLICE CASES MUST BE EXCAVATED TO CONDITION LOOPS REASONABLE?**

A. No. With respect to buried plant design, the industry has progressed "light years" since the buried plant described by Ms. Schlackman. Re-enterable splices, locators, hand-holes, filled cable, and pedestals have mitigated the problems that she describes. To suggest that splices be buried under dirt and moisture in the ground, when they can easily be mounted upright in small green pedestals instead,

is ludicrous. To suggest that buried cable should be placed under pressure is equally groundless, since the only effective way to avoid moisture entry in buried cable is to use *"filled"* PIC cable (Plastic Insulated Conductors surrounded with a water blocking compound – known to splicers as "icky-PIC"). Placing air pressure bottles on a filled PIC cable would simply blow the "icky-PIC" compound into the next splice. I have personally engineered outside plant, I have personally built and maintained outside plant, supervised others who do so, taught others how to do it, and have written corporate methods on how to do it. Over the course of over 30 years, I have extensive hands-on experience in this area. I would be amazed at an engineer who would bury a splice rather than place it in a dry upright pedestal, and would send that engineer back for retraining.

Ms. Schlackman's claim that cutting bridged tap in a buried plant environment requires taking two days for toning and marking the buried cable and buried splice, toning and marking other buried utility cables, then contacting an excavator to dig up the splice buried in the dirt, followed by performing the work and then re-burying and restoring the ground and sod is simply not credible. Even if the work is not in the small green pedestal terminal in front of the house, then it would be in a splice placed in a small green pedestal elsewhere. The splicer just has to find the pedestal can, open it (and open a splice case inside the can if a splice case was used), and do the work.

VI. THE LOOP CONDITIONING CRITIQUE PRESENTED IN AMERITECH-IL'S REBUTTAL TESTIMONY IS INCORRECT AND UNSUPPORTED.

12. Q. MS. SCHLACKMAN TAKES ISSUE WITH THE VARIOUS TASK TIMES PRESENTED FOR CONDITIONING CABLE PLANT. HAVE THESE TIMES BEEN VALIDATED?

A. Yes. At a recent hearing in BellSouth territory, in which I appeared as a witness, a BellSouth video was made of an actual 25-pair deloading job. Contrary to Ms. Schlackman's approach, BellSouth was conditioning an entire 25-pair binder group as the basis for its own evidence. The BellSouth expert witness claimed in testimony that the tasks and task times were typical and reasonable, with the exception that the pumping time for that particular 4-headed manhole, filled to the brim with water, was several times higher than my estimate. However, since my pumping time is applied as an estimate spread over every manhole, and each manhole does not need to be pumped, I am confident that the estimate of average times is a reasonable proxy. Putting aside the distribution of time to pump manholes, the BellSouth video confirmed that the task times estimated in my testimony are highly accurate – as BellSouth's own witness admitted.

In another validation exercise, I have performed the deloading and unbridging function on an actual splice, built for demonstrating the procedures to commissions such as this one. Photographs of that procedure, including individual task times, are being submitted as Exhibit 2.13 to my surrebuttal testimony.

As someone who has actually performed the work operations involved, and has observed and supervised others doing so, I can state confidently that either Ms. Schlackman's 3-year tour of supervising maintenance workers in Dallas

was not typical, or that she is simply incorrect in her assertion that my task times are impossible.

13. Q. CAN YOU SUMMARIZE YOUR RESPONSE TO MS. SCHLACKMAN'S TESTIMONY REGARDING THE DECONDITIONING OF OUTSIDE PLANT?

A. Yes. Ms. Schlackman's testimony largely consists of describing rare exception situations, or what amounts to outright defects in Ameritech-IL outside plant, in an attempt to create an impression that such anomalies are typical. Ms. Schlackman is apparently claiming that although anti-loading/anti-bridged tap guidelines existed since 1980 and 1972 respectively, Ameritech-IL ignored those guidelines until 1987-88, and then apparently felt no need to follow even their own guidelines over the course of the past 12 or 13 years on outside plant with service lives of only 16-20 years. If Ms. Schlackman were correct, the Commission might seriously question if Ameritech-IL has been delivering the service quality for which Illinois ratepayers have been charged for decades. For example, a problem such as hum or noise on a line leased by any customer of Ameritech-IL, including a CLEC, should and would be removed as a defect on the line without charging either the end customer or the CLEC. Yet Ms. Schlackman would have the Commission accept that Ameritech-IL would not bother to remove unnecessary load coils (that severely degrade POTS analog modem internet speeds—a frequent consumer complaint) and that it would preserve excessive bridged tap that should never have been engineered into the plant.

VII. LINE SHARING ON FIBER-FED DIGITAL LOOP CARRIER IS TECHNICALLY FEASIBLE UNDER PROJECT PRONTO.

14. Q. MR. LUBE CLAIMS THAT IT IS TECHNICALLY IMPOSSIBLE TO COMBINE VOICE AND DATA SIGNALS ONTO THE SAME FIBERS USING THE NGDLC SYSTEM DEPLOYED WITH PROJECT PRONTO. IS THAT ASSERTION CORRECT?

A. No. The equipment of choice for Project Pronto deployment is the Litespan Next Generation Digital Loop Carrier ("NGDLC") platform manufactured by Alcatel. This platform can be configured in a number of ways to provide Asynchronous Transfer Mode ("ATM") as well as Time Division Multiplexing ("TDM") feeder options between the Central Office Terminal ("COT") and the Remote Terminal ("RT"). One of the options explicitly supported by Alcatel data permits ATM (used for data) and TDM (used for voice) traffic to co-exist on the same physical fibers. Another option that may be consciously selected is to segregate the ATM and TDM traffic on separate fibers. Ameritech-IL's selection of segregating ATM and TDM traffic on separate fibers in the Project Pronto architecture is based on a business decision—certainly not a technical decision nor limitation of the equipment. For Mr. Lube to claim otherwise is technically incorrect, and runs counter to information that should be readily available to Ameritech-IL or any user of Alcatel Litespan products.

15. Q. MR. LUBE CLAIMS THAT LINE SHARING IS NOT POSSIBLE OVER PROJECT PRONTO FIBER-FED NGDLC. IS THAT ASSERTION CORRECT?

A. No. Mr. Lube claims that line sharing is not possible because the voice and data signals are traveling on separate fibers. Since it is a fact that these signals can

indeed co-exist on the same fibers using Ameritech's Litespan NGDLC platform, his argument fails.

16. Q. MR. LUBE CLAIMS THAT YOUR TESTIMONY AGREES THAT LINE SHARING OCCURS ONLY ON COPPER FACILITIES. IS THAT TRUE?

A. No. Mr. Lube has mischaracterized my generalized technical introductory statement used to introduce xDSL (as occupying the higher frequency portion of a loop for data) and extrapolated that point into an erroneous theory that xDSL/voice line-sharing can only occur over copper loops.

17. Q. MR. LUBE CLAIMS THAT AMERITECH-IL'S SO-CALLED "BROADBAND SERVICE" ACHIEVES THE SAME RESULT AS LINE SHARING. DO YOU AGREE?

A. Mr. Lube agrees that in a line sharing configuration, voice and data signals do indeed share the line from the end user to the RT. However, he attempts to claim that line sharing ends at the RT, because the voice and data signals are forced to travel on different fibers to the Central Office, and aggressively tries to sell the idea of a "broadband service." Mr. Lube's claim is based on tortured interpretations of regulatory language and on Ameritech-IL's anticompetitive business practices, not on technical and engineering practices and principles. I will leave it to the lawyers to argue the differences between a "service" unilaterally controlled by Ameritech-IL, and UNEs such as line sharing mandated by statutes, the FCC, and this Commission. From a technical and engineering standpoint, though, I can see no reason why CLECs should not be able to obtain line sharing as a UNE loop or a combination of UNE sub-loops.

18. Q. **MR. LUBE CLAIMS LEAVING EXISTING COPPER LOOPS IN PLACE FOR USE BY CLECS TO PROVISION XDSL SERVICES AFTER PROJECT PRONTO SHOULD ALLAY CLEC'S CONCERNS ABOUT NOT GETTING EQUAL ACCESS TO PROJECT PRONTO. DO YOU AGREE?**

A. No. What Mr. Lube neglected to mention is that the sub-loop distribution cable itself could potentially contain both Project Pronto pairs and an all copper xDSL service pair. Since the signal generated from the RT on a Project Pronto served copper distribution pair is considerably more powerful than the signal generated on the all copper loop from the Central Office, the potential for serious electromagnetic interference exists. The all-copper CLEC loop could suffer serious consequences. The telecommunications industry's T1E1 committee is presently considering this very problem.

Thus, the supposed choice that Ameritech-IL is offering CLECs, is really no choice at all, from a technical perspective. As the Project Pronto overlay grows, the all-copper solution will be neutralized, leaving only Ameritech-IL's offering. As Ameritech-IL's DLC penetration increases under Project Pronto to a condition of 80% penetration, then Ameritech will not only be squeezing out CLECs' line sharing opportunities, it will also be creating a potential electromagnetic interference generator for those few copper-based xDSL loops that CLECs have been able to provide.

19. Q. **MR. LUBE CLAIMS THAT IT IS NOT TECHNICALLY FEASIBLE TO UNBUNDLE THE PROJECT PRONTO ARCHITECTURE BECAUSE A SINGLE END USER'S DSL SERVICE WILL NOT OCCUPY A CONSISTENT END-TO-END PATH THROUGH THIS ARCHITECTURE. IS MR. LUBE CORRECT?**

A. No. Once again, Mr. Lube has strayed far away from basic technical facts. Neither voice signals nor data signals occupy a consistent, "nailed up" path in the NGDLC architecture. Voice calls are assigned in an NGDLC system on a "per call" basis, when appropriately engineered using a GR-303 dynamic time slot interchange—the typical method of using such equipment. This powerful feature of NGDLC yields one of its greatest benefits. In lieu of assigning permanent "nailed up" time slots to each user which would only be used when calls are in progress, NGDLC monitors available time slots and only uses a time slot while a call is active; it then makes it available again when the call is completed. When a customer picks up their telephone to get dialtone, the NGDLC system senses the off-hook condition, selects the next available time slot path through the DLC, through the multiplexer, and through the fiber back to the central office, and then sends dial tone to allow the customer to dial a call. Therefore, voice signals do not use consistent end-to-end paths, yet Mr. Lube is not asserting that Ameritech-IL cannot provision a voice-grade UNE loop using the Project Pronto architecture.

20. Q. ARE VOICE SIGNALS PARTIALLY PHYSICAL AND PARTIALLY VIRTUAL WHEN CARRIED ON NGDLC SYSTEMS?

A. Just as with Mr. Lube's description of DSL service, voice signals are partially physical (copper loop) and partially virtual (per call assigned channel) in the NGDLC. The fact that a shared loop uses data over voice in the copper distribution plant, and data next to voice in the fiber/NGDLC plant, does not mean that line sharing is not occurring.

21. Q. MR. LUBE CLAIMS THAT CLECS WILL NOT BE IMPAIRED IF PROJECT PRONTO AND THE BROADBAND SERVICE ARE NOT UNBUNDLED. PLEASE COMMENT.

A. Mr. Lube's claims are policy arguments, not technical realities. The options that Mr. Lube outlines are, in reality, no options at all. As described above, use of the all-copper solution will cease as Project Pronto services are installed into the common distribution cable plant. Collocation at Remote Terminal sites is a very limited and impractical option for numerous reasons, as even Mr. Lube recognizes. Forcing CLECs to construct large-scale local loop networks to reach end users is not an economically feasible alternative. That leaves only the option of utilizing Ameritech-IL's "Broadband Service" offering, which amounts to nothing more than resale.

My non-lawyer's understanding of the rights of CLECs is that CLECs have the right to obtain and assemble UNES to provide innovative advanced services. Ameritech-IL, however, is denying CLECS the opportunity to use the building blocks of a fiber-fed DLC architecture to provide customers in Illinois a variety of new services and features. Ameritech-IL's "Broadband Service" limits CLECS only to buying and reselling a pre-packaged offering with no ability to offer enhancements or options.

22. Q. MR. LUBE SUGGESTS THAT THE CLEC CONTROL OR OWNERSHIP OF LINE CARDS IS INAPPROPRIATE AND IMPRACTICAL. DO YOU AGREE?

A. The survival of competition and consumer choice in Illinois rests on the CLECs' ability to offer and deploy advanced services. The variety of "options" claimed by Ameritech-IL are either impossible, impractical or very short lived, since

Project Pronto is slated to roll out very quickly and in large scale. The only reasonable alternative is the "Plug & Play" option: *i.e.*, CLEC control and ownership of line cards. As is already evident from Mr. Lube's descriptions, Ameritech-IL is attempting to mandate the technology, the architecture, the configuration, and the types of service offerings available to the Project Pronto topology. CLEC ownership of line cards, combined with access to Project Pronto on a UNE basis, will give CLECs the "equal access" they need to compete with Ameritech-IL.

23. Q. MR. LUBE DESCRIBES SEVERAL OPERATIONAL/ADMINISTRATIVE ISSUES THAT COULD ARISE FROM CLEC OWNERSHIP OF LINE CARDS. PLEASE COMMENT.

A. The issues outlined by Mr. Lube (*e.g.* spare parts, inventory control, maintenance, processes, etc.) will no doubt replicate solutions already in place where CLECs physically or virtually collocate equipment in Ameritech-IL spaces today. Moreover, collocation of full DSLAMS in remote terminal locations, as offered in Ameritech-IL's menu of options, presents the same interesting challenges as does collocation of line cards. In short, the obstacles claimed by Mr. Lube merely obfuscate the reasonable solution: allowing CLECs to own line cards that allow them to control their own technical destinies.

24. Q. MR. LUBE ARGUES THAT COMPETITORS SHOULD NOT BE PERMITTED TO OWN LINE CARDS IN AMERITECH-IL REMOTE TERMINALS BECAUSE "A LINE CARD IS NOT A PIECE OF EQUIPMENT...IT IS ONLY A PIECE—PART OR SUB-COMPONENT OF A COMPLETE ITEM OF EQUIPMENT." IS THIS ARGUMENT REASONABLE?

A. No. Indeed, this argument does a fine job of showing how non-technical and strained Ameritech-IL's arguments are in attempting to limit competitive use of its Project Pronto architecture. Mr. Lube's attempt to argue that a "piece-part" is somehow "not a piece of equipment" is entirely baseless. It is as if Mr. Lube were arguing that no competition or substitution should be allowed in personal computer plug-in boards because those boards are only "piece-parts" of a computer.

25. Q. DOES MR. LUBE MISCHARACTERIZE THE PROJECT PRONTO REMOTE TERMINAL LINE CARDS AS EQUIPMENT TOO SMALL TO BE UNBUNDLED, OR TO BE OWNED BY CLECS UNDER THE FCC'S DECISIONS REGARDING OWNERSHIP OF NGDLC LINE CARDS?

A. Yes. The FCC clearly did not consider remote terminal line cards as the same minimally functional "piece-parts" that Mr. Lube is attempting to have this Commission believe. The FCC stated,

> We conclude that plug-in cards containing advanced services capability should be classified as Advanced Services Equipment for the purposes of the *Merger Conditions*. The plug-in ADLU Card is used to provide advanced services to consumers. As SBC itself notes, the ADLU Card plugged into an NGDLC system provides functionality similar to a DSLAM, although the plug-in card also contains voice capabilities and the spectrum splitter functionality. We note that almost all commenters contend that the plug-in card performs the functions of a DSLAM when plugged into an NGDLC system. The manufacturer's description of the equipment states that the plug-in cards integrate ADSL and Asynchronous Transfer Mode (ATM) capabilities into the NGDLC systems. Indeed, the plug-in ADLU Card is an indispensable component for providing ADSL service through the manufacturer's NGDLC system; without the plug-in ADLU Card in the NGDLC system, a carrier would have to collocate other equipment (*e.g.*, a DSLAM) in the remote terminal to provide DSL service to consumers served by such remote terminals. Other manufacturers of competing plug-in cards describe their cards as creating a DSLAM within a remote terminal. We conclude that

plug-in cards provide carriers with DSLAM functionality, so that the plug-in cards become "functionally equivalent" to a DSLAM.[9]

Moreover, the FCC's finding that the line cards are "... properly classified as Advanced Services Equipment under the *Merger Conditions*, so that SBC's incumbent LECs are not permitted to own and operate the ADLU Cards after November 8, 1999"[10] would be entirely inconsistent with Mr. Lube's extended argument that the line cards are mere "piece-parts" that cannot be unbundled.

More importantly, the FCC explicitly requires that "No later than September 15, 2000, SBC/Ameritech will establish a SCA process for processing a telecommunications carrier's request, including the request of a separate Advanced Services affiliate, for space to install the carrier's owned or leased equipment either in an existing or future deployed remote terminal or, in a newly deployed adjacent cabinet structure."[11] As the FCC has found that line cards are equipment, this requirement dictates that competitive carrier line cards are properly eligible for placement in remote terminals.

26. Q. MR. LUBE OPINES THAT NEW TECHNOLOGIES AND ADDITIONAL LINE-SHARING OPTIONS CAN BEST BE ADDRESSED BY AMERITECH-IL IN SOME YET-TO-BE DEFINED COLLABORATIVE. DO YOU AGREE?

A. No. There is no reason to believe that Ameritech-IL will be cooperative in negotiating new functionalities and technologies that will assist CLECs in competing with Ameritech-IL. Thus far Ameritech-IL has steadfastly refused to

---

[9] Second Memorandum Opinion and Order, CC Docket No. 98-141, ASD File No. 99-49, rel. September 8, 2000, at ¶ 14.

[10] *Id.* at ¶ 16.

[11] SBC Waiver Order, Appendix A, at section 5(c).

support the full range of options requested by CLECs and available on the equipment currently being deployed. It is thus unrealistic to expect that Ameritech-IL will ever consider deploying new technologies at the request of CLECs. As Mr. Ayala discusses in his Surrebuttal Testimony, collaboratives have failed as a means for CLECs to enforce rights to specific OSS modifications required by law. Collaboratives will almost certainly fail for Project Pronto enhancements since Ameritech-IL disputes the right of CLECs to obtain anything other than a pre-packaged service.

VIII. MS. SCHLACKMAN'S AND MR. SMALLWOOD'S COMPLAINTS CONCERNING THE ENGINEERING ESTIMATES AND INPUTS TO THE COST RESULTS SPONSORED BY MS. MURRAY ARE INCORRECT.

27. Q. IN THE NEXT TO LAST RESPONSE IN HER REBUTTAL, MS. SCHLACKMAN PURPORTS TO RESPOND TO MR. ZULEVIC'S CLAIM THAT THE PHYSICAL WORK REQUIRED TO PROVISION A LINE SHARING ARRANGEMENT SHOULD TAKE LESS THAN 10 MINUTES. DOES MS. SCHLACKMAN ACTUALLY ADDRESS THE SUBSTANCE OF MR. ZULEVIC'S TESTIMONY?

A. No. Ms. Schlackman begins by listing a number of steps that must be completed in order to complete a line sharing order beginning with "First, an accurate service order ("LSR") must be received." This list is apparently intended to support her assertion that Mr. Zulevic's time estimate is incorrect. However, as most of the activities in Ms. Schlackman's list are performed by electronic systems without any manual intervention at all, the bulk of Ms. Schlackman's list is misleading. Those activities take no "minutes" whatsoever. More importantly, once Ms. Schlackman does turn to actual physical work activities, her analysis is based on the relatively inefficient service configuration "which can involve up to five

jumper pairs and multiple tie cables" instead of the more efficient arrangement that Mr. Zulevic was advocating in his testimony. Hence, Ms. Schlackman's supposed rebuttal is merely restating the position in Ameritech-IL's direct testimony, is not rebutting the substance of Mr. Zulevic's reply, and illustrates the inefficiency of the tie cable and IDF layouts that Ameritech-IL has proposed for costing purposes.

28. Q. **AT PAGES 2-3 OF HIS REBUTTAL, MR. SMALLWOOD CLAIMS THAT THE INSTALLATION INPUTS PERTAINING TO SPLITTER COSTS PRESENTED BY MS. MURRAY ARE UNDERSTATED. IS HE CORRECT?**

A. No. Mr. Smallwood claims that the splitter cost presented by Ms. Murray leaves out "expenses associated with the engineering" and transportation charges. Mr. Smallwood neglects to mention that both of these costs would be very small on a per splitter basis. Engineering, in particular, might seem a significant expense until one realizes that the tie cables connected to the splitters already carry all of the engineering cost normally associated with connecting two network addresses. It is also worth noting the simplicity of installing a splitter shelf. The "installation kit" that is shipped with the splitter shelf consists of a small plastic bag containing 4 sheet metal screws. Hence, the additional engineering associated with the splitters themselves would be minimal. Contrary to Mr. Smallwood's assertion, I did in fact consider such ancillary costs in recommending and supporting the installation cost that Ms. Murray uses in her calculation.

Mr. Smallwood also implies that the calculation is somehow flawed because it does not include the cost of additional tie cables that Ameritech-Il

would place between its intermediate distributing frame and an equipment rack. It is curious that Mr. Smallwood should characterize that omission as a flaw, as it is a very deliberate and important difference between Ameritech-IL's approach and my own. My direct testimony explains in detail why the additional jumpers that Mr. Smallwood claims are missing from the calculation are unnecessary and inefficient.

29. Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes, it does.

::ODMA\PCDOCS\CHI_DOCS1\327475\1